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ABSTRACT

This brief overview provides information on the definition, incidence, and characteristics of children with hearing impairments and deafness. The federal definitions of hearing impairment and deafness are provided. The different types of hearing loss are noted, including: (1) conductive (caused by diseases or obstructions in the outer or middle ear); (2) sensorineural (caused by damage to the delicate sensory hair cells of the inner ear or the nerves); (3) mixed (caused by a combination of conductive and sensorineural loss); and (4) central (caused by damage or impairment to the nerves or nuclei of the central nervous system). The fact sheet explains the educational implications of a child with a hearing impairment and describes possible special education services that the child may require, including: an amplification system; an interpreter; speech, language, and auditory training; favorable seating to facilitate speechreading; captioned films; assistance of a notetaker; instruction for the class on alternate communication methods; and counseling. The fact sheet also describes the use of alternate forms of communication by children with hearing loss. A resource list of written materials and organizations is included. (CR)

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National Information Center
for Children and Youth
with Disabilities

NICHCY

P.O. Box 1492
Washington, D.C.
20013-1492

1-800-695-0285 (Voice/TT)

Deafness and Hearing Loss

✧ *Definition* ✧

The Individuals with Disabilities Education Act (IDEA), formerly the Education of the Handicapped Act (P.L. 94-142), includes "hearing impairment" and "deafness" as two of the categories under which children with disabilities may be eligible for special education and related service programming. While the term "hearing impairment" is often used generically to describe a wide range of hearing losses, including deafness, the regulations for IDEA define hearing loss and deafness separately.

Hearing impairment is defined by IDEA as "an impairment in hearing, whether permanent or fluctuating, that adversely affects a child's educational performance."

Deafness is defined as "a hearing impairment that is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification."

Thus, deafness may be viewed as a condition that prevents an individual from receiving sound in all or most of its forms. In contrast, a child with a hearing loss can generally respond to auditory stimuli, including speech.

✧ *Incidence* ✧

Hearing loss and deafness affect individuals of all ages and may occur at any time from infancy through old age. The U.S. Department of Education (1995) reports that during the 1993-94 school year, 64,249 students aged 6 to 21 (or 1.3% of all students with disabilities) received special education services under the combined categories of "hearing impairment" and "deafness." However, the number of children with hearing loss and deafness is undoubtedly higher, since many of these students may have other disabilities as well and may be served under other categories.

✧ *Characteristics* ✧

It is useful to know that sound is measured by its loudness or intensity (measured in units called decibels, dB) and its frequency or pitch (measured in units called hertz, Hz). Impairments in hearing can occur in either or both areas, and may exist in only one ear or in both ears. Hearing loss is generally described as slight, mild, moderate, severe, or profound, depending upon how well a person can hear the intensities or frequencies most greatly associated with speech. Generally, only children whose hearing loss is greater than 90 decibels (dB) are considered deaf for the purposes of educational placement.

There are four types of hearing loss. *Conductive* hearing losses are caused by diseases or obstructions in the outer or middle ear (the conduction pathways for sound to reach the inner ear). Conductive hearing losses usually affect all frequencies of hearing evenly and do not result in severe losses. A person with a conductive hearing loss usually is able to use a hearing aid well or can be helped medically or surgically.

Sensorineural hearing losses result from damage to the delicate sensory hair cells of the inner ear or the nerves which supply it. These hearing losses can range from mild to profound. They often affect the person's ability to hear certain frequencies more than others. Thus, even with amplification to increase the sound level, a person with a sensorineural hearing loss may perceive distorted sounds, sometimes making the successful use of a hearing aid impossible.

A *mixed* hearing loss refers to a combination of conductive and sensorineural loss and means that a problem occurs in both the outer or middle and the inner ear. A *central* hearing loss results from damage or impairment to the nerves or nuclei of the central nervous system, either in the pathways to the brain or in the brain itself.

✧ *Educational Implications* ✧

Hearing loss or deafness does not affect a person's intellectual capacity or ability to learn. However, children who are either hard of hearing or deaf generally require some form of special education services in order to receive an adequate education. Such services may include:

- regular speech, language, and auditory training from a specialist;
- amplification systems;
- services of an interpreter for those students who use manual communication;
- favorable seating in the class to facilitate speechreading;
- captioned films/videos;
- assistance of a notetaker, who takes notes for the student with a hearing loss, so that the student can fully attend to instruction;
- instruction for the teacher and peers in alternate communication methods, such as sign language; and
- counseling.

Children who are hard of hearing will find it much more difficult than children who have normal hearing to learn vocabulary, grammar, word order, idiomatic expressions, and

other aspects of verbal communication. For children who are deaf or have severe hearing losses, early, consistent, and conscious use of visible communication modes (such as sign language, fingerspelling, and Cued Speech) and/or amplification and aural/oral training can help reduce this language delay. By age four or five, most children who are deaf are enrolled in school on a full-day basis and do special work on communication and language development. It is important for teachers and audiologists to work together to teach the child to use his or her residual hearing to the maximum extent possible, even if the preferred means of communication is manual. Since the great majority of deaf children (over 90%) are born to hearing parents, programs should provide instruction for parents on implications of deafness within the family.

People with hearing loss use oral or manual means of communication or a combination of the two. Oral communication includes speech, speechreading and the use of residual hearing. Manual communication involves signs and fingerspelling. Total Communication, as a method of instruction, is a combination of the oral method plus signs and fingerspelling.

Individuals with hearing loss, including those who are deaf, now have many helpful devices available to them. *Text telephones* (known as TTs, TTYs, orTDDs) enable persons to type phone messages over the telephone network. The *Telecommunications Relay Service* (TRS), now required by law, makes it possible for TT users to communicate with virtually anyone (and vice versa) via telephone. The National Institute on Deafness and Other Communication Disorders Information Clearinghouse (telephone: 1-800-241-1044, voice; 1-800-241-1055, TT) makes available lists of TRS numbers by state.

✧ *Resources* ✧

Adams, J.W. (1988). *You and your hearing-impaired child: A self-instructional guide for parents.* Washington, DC: Gallaudet University. (Available from Galludet University Bookstore, Mail Order Dept., 800 Florida Ave., NE, Washington, DC 20002. Telephone: 1-800-451-1073.)

Luterman, D.M. (1991). *When your child is deaf: A guide for parents.* Parkton, MD: York Press. (Available from York Press, P.O. Box 504, Timonium, MD 21094. Telephone: 1-800-962-2763.)

Ross, Mark (ed.) (1990) *Hearing-impaired children in the mainstream.* Parkton, MD: York Press. (See above for ordering information .)

Schwartz, S. (Ed.). (1996). *Choices in deafness: A parents' guide to communication options.* Rockville, MD: Woodbine House. [Available in August 1996 from Woodbine House, 6510 Bells Mill Road, Bethesda, MD 20817. Telephone: 1-800-843-7323 (outside DC area); (301) 897-3570 (in DC area).]

Shhh Journal. Published bimonthly by Self Help for Hard of Hearing People (SHHH). See "Organizations" for SHHH's address and telephone number.

✧ *Organizations* ✧

Alexander Graham Bell Association for the Deaf, Inc.
3417 Volta Place, NW
Washington, DC 20007
(202) 337-5220 (Voice/TT)
E-mail: agbell2@aol.com

American Society for Deaf Children
2848 Arden Way, Suite 210
Sacramento, CA 95825-1373
1-800-942-2723 (Voice/TT)
E-mail: asdc1@aol.com

American Speech-Language Hearing Association
10801 Rockville Pike
Rockville, MD 20852
(301) 897-5700 (Voice/TT)
1-800-638-8255 (Helpline)

National Information Center on Deafness
Gallaudet University
800 Florida Avenue N.E.
Washington, DC 20002-3695
(202) 651-5051 (Voice)
(202) 651-5052 (TT)
E-mail: nicd@gallux.gallaudet.edu
Web site: http://www.gallaudet.edu/~nicd

National Institute on Deafness and Other Communication Disorders Clearinghouse
One Communication Avenue
Bethesda, MD 20892-3456
1-800-241-1044 (Voice)
1-800-241-1055 (TT)
E-mail: nidcd@aerie.com

Self Help for Hard of Hearing People (SHHH)
7910 Woodmont Avenue, Suite 1200
Bethesda, MD 20814
(301) 657-2248 (Voice)
(301) 657-2249 (TT)
E-mail: shhh.nancy@genie.com

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